

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

In the Matter of the Application of )  
 )  
HAWAIIAN ELECTRIC COMPANY, INC., )  
HAWAII ELECTRIC LIGHT COMPANY, INC., )  
AND MAUI ELECTRIC COMPANY, LIMITED )  
 )  
For Approval to Commit Funds in )  
Excess of \$2,500,000 for the Phase 1 )  
Grid Modernization Project, and )  
Related Requests. )  
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DOCKET NO. 2018-0141

DECISION AND ORDER NO. 36230

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In the Matter of the Application of )	
HAWAIIAN ELECTRIC COMPANY, INC., )	Docket No. 2018-0141
HAWAII ELECTRIC LIGHT COMPANY, INC., )	
AND MAUI ELECTRIC COMPANY, LIMITED )	Order No. <b>36230</b>
For Approval to Commit Funds in )	
Excess of \$2,500,000 for the Phase 1 )	
Grid Modernization Project, and )	
Related Requests. )	
_____ )	

DECISION AND ORDER

By this Order, the State of Hawaii Public Utilities Commission ("commission") approves, subject to the conditions set forth herein, the requests in the Application<sup>1</sup> filed by HAWAIIAN ELECTRIC COMPANY, INC., HAWAII ELECTRIC LIGHT COMPANY, INC., and MAUI ELECTRIC COMPANY, LIMITED (individually, "Company"

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<sup>1</sup>"Application of Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited; Verification; Exhibits "A"-"L"; and Certificate of Service," filed June 21, 2018 ("Application"). The Parties are the Companies and the DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"). No persons moved to intervene or participate in this proceeding.

collectively, "Companies") requesting commission approval for the first phase of the Companies' Grid Modernization Strategy.<sup>2</sup>

I.

BACKGROUND AND PROCEDURAL HISTORY

A.

The Application

On February 7, 2018, the commission directed the Companies to implement the Strategy, subject to the commission's directives and guidance.<sup>3</sup> On June 21, 2018, the Companies filed the Application requesting commission approval for expenditures of approximately \$86.3 million related to implementing the first phase of the Strategy ("Phase 1"), including the acquisition and deployment of advanced meters, a meter data management system ("MDMS"), a telecommunications network, and related matters.<sup>4</sup> The Companies propose to implement Phase 1 between 2019 and 2023. The Companies filed the Application pursuant to Paragraph 2.3.g.2 of General Order No. 7, Standards for Electric Utility Service in

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<sup>2</sup>See "Modernizing Hawaii's Grid For Our Customers," filed in Docket No. 2017-0226 on August 29, 2017 ("GMS," "Grid Modernization Strategy," or "Strategy").

<sup>3</sup>See In re Public Util. Comm'n, Decision and Order No. 35268, filed in Docket No. 2017-0226 on February 7, 2018 ("Order No. 35268").

<sup>4</sup>Application at 12.

the State of Hawaii ("G.O. 7"), as modified by Decision and Order No. 21002, filed May 27, 2004, in In re Hawaiian Elec. Co., Inc., Hawaii Elec. Light Co., Inc., and Maui Elec. Co., Ltd., in Docket No. 03-0257 ("Decision and Order No. 21002").<sup>5</sup>

The Companies propose specific accounting and ratemaking treatment for Phase 1, including: (1) deferral of Phase 1's software costs; (2) accrual of allowance for funds used during construction ("AFUDC"), as appropriate, during the applicable construction phases of Phase 1; and (3) recovery of capital costs and deferred costs through the Major Project Interim Recovery ("MPIR") adjustment mechanism.<sup>6</sup>

B.

Procedural History

On June 21, 2018, the Companies filed the Application. On August 29, 2018, the commission issued information requests ("IRs") to the Companies, to which the Companies responded on September 12, 2018. On July 20, 2018, the commission issued

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<sup>5</sup>See Application at 5. The Parties voluntarily and knowingly waived the 90-day deadline date for the commission to render its decision and order on the Application. See Order No. 35645, "Approving With Modifications, The Parties' Proposed Procedural Schedule," ("Order No. 35645") filed August 14, 2018, at 3.

<sup>6</sup>See Application at 38-40. See also In re Public Util. Comm'n, Docket No. 2013-0141, Order No. 34514, filed April 27, 2017, Attachment A ("MPIR Guidelines").

Protective Order No. 35591 to govern the designation of confidential information produced in this docket.<sup>7</sup>

On July 23, 2018, the Companies filed, under seal, the redacted pages of the Application with the commission and Consumer Advocate.

On August 14, 2018, the commission issued Order No. 35645, which established the procedural schedule for this docket.<sup>8</sup>

On October 3, 2018, the Consumer Advocate issued information requests to the Companies, to which the Companies responded on October 24, 2018. On November 28, 2018, the Consumer Advocate filed its statement of position.<sup>9</sup>

On December 19, 2018, the Companies filed their reply statement of position.<sup>10</sup>

The commission received public comments on the Application on June 26, 2018, from bb Kaizen, regarding the health

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<sup>7</sup>Protective Order No. 35591, filed July 20, 2018.

<sup>8</sup>Order No. 35277, "Approving with Modifications the Parties' Proposed Procedural Schedule," filed August 14, 2018. As previously noted, the commission adopted the Parties' proposed procedural schedule, which set deadlines beyond the 90-day period set forth in Paragraph 2.3(g)(2) of G.O. 7.

<sup>9</sup>"Division of Consumer Advocacy's Statement of Position; and Certificate of Service," ("Consumer Advocate SOP"), filed November 28, 2018.

<sup>10</sup>"Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited's Reply Statement of Position; Exhibits A-C; and Certificate of Service," ("Companies RSOP") filed December 19, 2018.

effects of advanced meters, and on October 15, 2018, from Sunrun, Inc., regarding how to improve Phase 1's cost-effectiveness.

## II.

### POSITIONS OF THE PARTIES

#### A.

##### The Companies

##### 1.

##### Phase 1

According to the Companies, the current electric grid is neither sufficient to meet customers' needs nor adequate to achieve the State's Renewable Portfolio Standards ("RPS") goals. The Companies state that "[f]or Hawaii, an advanced, resilient and modernized grid is foundational to serving customers with affordable and reliable electric service, while also transforming the system to achieve a renewable energy future[,] and that the Strategy "will provide the modernized platform for evolving needs and expectations of Hawaii's communities and stakeholders," and "will advance state energy policies and provide customers and communities with improved service, tools, offering and capabilities."<sup>11</sup> The Companies state that deploying the Strategy sequentially is "necessary to build a grid that is capable of

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<sup>11</sup>Application at 2.



evolving into a conduit for coordinated import and export of energy and related services . . . ."<sup>12</sup> The Companies argue that "[t]his phased approach will align customer value and affordability with identified incremental grid investments."<sup>13</sup>

As part of Phase 1 of the Strategy, the Companies propose investment in three main technologies: advanced meters; a Meter Data Management System ("MDMS"); and a telecommunications network. Advanced meters will be equipped with communications technologies and "record electricity demand, usage, and power characteristics in configurable intervals as well as send notifications for anomalous conditions to provide the Companies with more insight into the distribution grid and support the Companies' growing portfolio of customer energy options."<sup>14</sup> The MDMS "collects and stores data received from the advanced meters . . . enabling customer energy options, data analytics to better refine load profiles for forecasting and grid planning, alerts for system operators regarding anomalous conditions, and a customer portal . . . ."<sup>15</sup> The Companies propose an interoperable and

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<sup>12</sup>Application at 2.

<sup>13</sup>Application at 2.

<sup>14</sup>Application at 2.

<sup>15</sup>Application at 12. The Companies also note that "[t]he MDMS data will interface with the [Customer Information System] billing module through the standardized [Meter Data Unification System] to enable customer billing." Id. at 27.

scalable telecommunications network that will enable "the communication path for both advanced meters and field devices for distribution sensing, control, and automation."<sup>16</sup>

According to the Companies, Phase 1 of the Strategy will enable functionality needed by the programs, rates, and tariffs being reviewed and developed in various commission proceedings including: Distributed Energy Resources ("DER"); Community-Based Renewable Energy Program ("CBRE"); Demand Response ("DR"); and Electrification of Transportation ("EoT").<sup>17</sup> The Companies state that the vendor communities for advanced meters, MDMS, and the telecommunications networks are mature.<sup>18</sup> Finally, the Companies state that Phase 1 will provide the basis for future Strategy deployments "such as [an Advanced Distribution Management System] and other field devices, necessary to increase grid efficiency and resiliency while continuing to grow customer options and utility-based program opportunities . . . ." <sup>19</sup>

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<sup>16</sup>Application at 12. The Companies also note that "[t]he deployment of advanced meters and the new telecommunications network will require installation of related software systems, including a telecommunications headend (also referred to as a telecommunications gateway), meter headend and MDMS." Id. at 24.

<sup>17</sup>Application at 15-16 (citations omitted).

<sup>18</sup>Application at 16.

<sup>19</sup>Application at 37-38.

2.

Customer Bill Impact

According to the Companies' estimates, typical residential customers would see the following bill impacts from implementation of Phase 1.

**Residential Customer Bill Impact Summary<sup>20</sup>**

	Monthly Bill Impact 2019-2052 for 500 kWh	Monthly Bill Impact Range for 500 kWh	Annual Rate Impact Range (\$/kWh)
HECO	\$0.24	\$0.01 - \$0.59	\$0.0015 - \$0.1170
MECO	\$0.34	\$0.05 - \$0.87	\$0.0095 - \$0.1748
HELCO	\$0.55	\$0.05 - \$1.18	\$0.0101 - \$0.2354

3.

Cost Recovery

The Companies propose to recover Phase 1's costs via the MPIR adjustment mechanism that the commission established in Docket No. 2013-0141, "until base rates that reflect the revenue requirements associated with the Capital Costs and Deferred Costs of Phase 1 take effect in a future rate case for each respective company . . . ." <sup>21</sup>

In the event the commission denies the Companies' request to recover Phase 1's deferred costs through the MPIR adjustment mechanism, the Companies request, in the alternative,

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<sup>20</sup>See Application at 40, Exhibit I, at 2-4.

<sup>21</sup>See Application at 5-6 (citation omitted).

approval to recover Phase 1's deferred costs through the Renewable Energy Infrastructure Program Surcharge ("REIP Surcharge"), approved in Docket No. 2007-0416, "until base rates that reflect the revenue requirements associated with the Deferred Costs take effect in a future rate case for each respective company . . . ." <sup>22</sup>

In the event that the commission denies the Companies' request to recover Phase 1's deferred costs through the MPIR mechanism or the REIP Surcharge, the Companies request, in the alternative, to recover Phase 1's deferred costs in a future rate case for each Company, "with amortization of the Deferred Costs commencing when base rates reflect that the Deferred Costs take effect in those respective proceedings . . . ." <sup>23</sup>

B.

The Consumer Advocate

1.

Phase 1

The Consumer Advocate recommends that the commission approve the requested relief set forth in the Companies' Application, subject to certain conditions. <sup>24</sup>

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<sup>22</sup>See Application at 6.

<sup>23</sup>See Application at 6.

<sup>24</sup>See Consumer Advocate SOP at 1-2.

The Consumer Advocate states that it "understands the importance of grid modernization and the critical roles smart meters will play in the cost-effective achievement of Hawaii's energy-related environmental and economic goals."<sup>25</sup> The Consumer Advocate notes several benefits of advanced meters, including: interval usage data; conservation; operating benefits; and data for grid operations and planning.<sup>26</sup> Despite this general support, the Consumer Advocate identifies several deficiencies in the Application, including: (1) a lack of clear plans related to shortening the time interval of data collection;<sup>27</sup> (2) operating benefits are not quantified;<sup>28</sup> (3) a discrepancy between the recovery of costs by the Companies and delivery of benefits to the customers;<sup>29</sup> and (4) a lack of a sufficient cost/benefit analysis.<sup>30</sup>

Despite these concerns, the Consumer Advocate states "smart meter deployment must begin; otherwise Hawaii's ability to move continuously forward with its clean energy transition will be

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<sup>25</sup>Consumer Advocate SOP at 9.

<sup>26</sup>Consumer Advocate SOP at 9.

<sup>27</sup>See Consumer Advocate SOP at 12-13.

<sup>28</sup>See Consumer Advocate SOP at 15-16.

<sup>29</sup>See Consumer Advocate SOP at 17.

<sup>30</sup>See Consumer Advocate SOP at 19-20.

hindered."<sup>31</sup> Instead of outright rejection, the Consumer Advocate offers "a more prescriptive approach" to demonstrate how to improve the Companies' advanced meter roll-out plan, including optimizing the advanced meter roll-out design for operating benefits and for customer program benefits, and optimizing communications.<sup>32</sup> The Consumer Advocate suggests that the Companies could optimize advanced meter roll-out design for operating benefits by calculating the rate impacts of advanced meters based on a 15-year useful life instead of a 30-year useful life, resulting in rates fifty (50) percent higher than those indicated by the Companies.<sup>33</sup> The Consumer Advocate suggests that the Companies could optimize advanced meter roll-out design for customer program benefits by prioritizing affluent neighborhoods or circuits with high average use per customer, as opposed to focusing primarily on program participation, such as DR and DER.<sup>34</sup>

The Consumer Advocate suggests that the Companies optimize communications by using existing public telecommunications networks and not proprietary mesh networks.<sup>35</sup>

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<sup>31</sup>Consumer Advocate SOP at 22.

<sup>32</sup>See Consumer Advocate SOP at 22-23.

<sup>33</sup>See Consumer Advocate SOP at 24-25.

<sup>34</sup>See Consumer Advocate SOP at 26-27.

<sup>35</sup>See Consumer Advocate SOP at 27-29.

Ultimately, the Consumer Advocate recommends: (1) Approving the MDMS and related interface development, with conditions; (2) approving the installation of advanced meters based on customer program participation, with conditions; (3) rejecting proprietary mesh communications network development in favor of public network options, for now; and (4) commencing a communications network study to develop and analyze meter and distribution equipment communications options.<sup>36</sup> The Consumer Advocate specifically recommends that the commission "place a cap on the total project cost while holding the Companies to installing the MDMS and deploying 175,170 meters."<sup>37</sup>

## 2.

### Cost Recovery

The Consumer Advocate argues that cost recovery through "mechanisms such as MPIR and REIP" mean that cost savings associated with projects will be captured at a different time than the cost recovery.<sup>38</sup> To address this concern, the Consumer Advocate recommends that the commission "establish a pass-through

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<sup>36</sup>See Consumer Advocate SOP at 30.

<sup>37</sup>See Consumer Advocate SOP at 31 (the Consumer Advocate redacted its proposed cost cap number as confidential, pursuant to Protective Order No. 35591).

<sup>38</sup>See Consumer Advocate SOP at 41.

methodology and/or process, similar to Docket No 2014-0170" to provide a way to timely pass on savings associated with Phase 1 to the Companies' customers.<sup>39</sup> The Consumer Advocate also argues that the commission should update rate designs to ensure that costs are recovered from cost-causers.<sup>40</sup> In sum, the Consumer Advocate believes that it could be reasonable for the commission to allow cost recovery for Phase 1 through the MPIR and/or base rates, provided that: (1) the Companies "deliver the cost-benefit analysis that might help justify that the overall net benefits associated with grid modernization could help all customers[;]" and (2) the commission addresses rate design "sooner rather than later . . . ." <sup>41</sup>

C.

The Companies' RSOP

In their RSOP, the Companies argue that some of the Consumer Advocate's proposed conditions are "not in the public interest" and could undermine their carefully developed grid modernization plans.<sup>42</sup> Specifically, the Companies object to the

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<sup>39</sup>See Consumer Advocate SOP at 41.

<sup>40</sup>See Consumer Advocate SOP at 41-42.

<sup>41</sup>See Consumer Advocate SOP at 42 (emphasis in original).

<sup>42</sup>See Companies RSOP at 2.



Consumer Advocate's proposals to optimize advanced meter roll-out because regional opt-out approaches "are inconsistent with the proportional deployment that was vetted through the stakeholder engagement process."<sup>43</sup> The Companies also object to the Consumer Advocate's proposal to use existing telecommunications networks because they "would actually increase operational costs, increase risks of obsolescence and stranded costs, and reduce operational flexibility."<sup>44</sup> With regard to the Consumer Advocate's concern that the Companies intend to collect meter data at too wide an interval (i.e., five minutes), the Companies state that "it is both unnecessary and costly to deploy advanced metering with a default interval setting of less than five minutes, although specific customer meters can be set to record data every minute if a future program has need for that level of resolution."<sup>45</sup>

The Companies also oppose the Consumer Advocate's proposal for a cost cap, stating that it is based on the faulty reasoning "that the MDMS interface development work and costs can be reduced if the Consumer Advocate's telecommunications network recommendation is adopted."<sup>46</sup> The Companies also argue that a cost

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<sup>43</sup>See Companies RSOP at 3.

<sup>44</sup>See Companies RSOP at 3.

<sup>45</sup>See Companies RSOP at 35.

<sup>46</sup>See Companies RSOP at 41.

cap could deny them the opportunity to recover prudently incurred investments because a situation could arise "where it is reasonable and in the public interest for a utility to incur a level of expenditures that exceeds a previously capped amount . . . ."<sup>47</sup>

### III.

#### DISCUSSION

##### A.

#### Introduction

The Strategy is the Companies' latest effort to modernize their electric grids,<sup>48</sup> and Phase 1 is the Companies' first step to implement the Strategy. Order No. 35268 directed that the Companies demonstrate, as a part of any application(s) to implement the Strategy:

(1) customer value and benefits; (2) efforts to minimize risk of stranded costs; (3) greater renewable and DER integration; (4) data access, IT security and privacy measures; (5) support for other commission and Company priorities (e.g., DR, DER, community based renewable energy, etc.); (6) interoperability with existing non-legacy resources, including customer-owned, Company-owned, and third-party-owned, to the greatest extent possible; (7) that resources for the Strategy purchased in the next six years will be compatible with resources purchased beyond six years, to the greatest extent possible;

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<sup>47</sup>See Companies RSOP at 42-43.

<sup>48</sup>See Consumer Advocate SOP at 4-7.

and (8) describe any necessary expenditures beyond 2023.<sup>49</sup>

As discussed below, the Phase 1 Application sufficiently complies with these requirements.

B.

Compliance with the Strategy

1.

Customer Value and Benefits

The Companies did not include a cost-benefit analysis in the Application. Explaining their decision not to do so, the Companies state:

"[a]s noted in the GMS Phase 1 Business case, it is impracticable to aggregate GMS implementation benefits for use in a traditional cost-benefit analysis. GMS investments have interrelated and naturally synergistic functions that make it infeasible to determine the cost-effectiveness of each GMS component independently. This difficulty is compounded by prior decisions in other dockets (e.g., DR and DER) where benefits were determined separate from the GMS and using different methods and assumptions. Recognizing this, in the GMS, the Companies proposed a holistic cost-effectiveness framework for evaluating the Companies' grid modernization efforts. Under this framework, the Phase 1 advanced metering, headend, MDMS, and telecommunications components would all be analyzed using the lowest reasonable cost evaluation methodology.<sup>50</sup>

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<sup>49</sup>Order No. 35268 at 38.

<sup>50</sup>Application at 30 (citations omitted).

Instead of using a traditional cost-benefit analysis, the Companies state that "Phase 1 is expected to be cost-beneficial under a lowest reasonable cost analysis, and when considered in the context of enabling distributed customer energy options that can provide more cost-effective alternatives to traditional wired investments."<sup>51</sup> The Companies' use of lowest reasonable cost analysis in Phase 1 is consistent with what the Companies proposed in the Strategy.<sup>52</sup>

## 2.

### Efforts to Minimize Risk of Stranded Costs

The Companies state their intent to minimize the risk of stranded costs.<sup>53</sup> Although the Companies' stated intent responds to the commission's guidance, some components of Phase 1 are dependent on the Companies' assumptions about customer uptake of specific technologies or energy programs offered.<sup>54</sup> At this time, it is unknowable whether the Companies' assumptions are a true

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<sup>51</sup>Application at 29.

<sup>52</sup>See Strategy 43-44.

<sup>53</sup>See Application at 36 ("While evaluating interim solutions needed to implement customer energy options in advance of Phase 1 approval, the Companies will work to minimize stranded investments and costs inherent with these solutions.")

<sup>54</sup>See Application at 34 ("[T]he advanced meter deployment forecast and associated cost in this Application have inherent variability due to program adoption by customers.")

representation of future customer participation as it relates to Phase 1. As these implementation details become known, the Companies must work continuously to minimize the risk of stranded costs.

3.

Greater Renewable Energy and DER Integration

The Companies argue that implementation of Phase 1 will support greater renewable energy and DER integration.<sup>55</sup> The Companies further argue that their vision to use advanced technologies will "modernize the existing grid into a platform for enhancing customer value, provide operational flexibility to integrate more renewables, reduce Hawaii's dependence on imported oil, and spur economic development."<sup>56</sup> The Companies must maintain their focus on greater renewable energy and DER integration as they implement Phase 1, and develop the remaining implementation phases of the Strategy.

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<sup>55</sup>See Application, Exhibit B at 3 ("Phase 1 of the GMS implementation will provide investment and capabilities to evolve the grid and enable the integration and optimal utilization of customer resources made available through existing and new DER programs and DR Portfolio . . . .") (emphasis added).

<sup>56</sup>See Application, Exhibit B at 4 (emphasis added).

Data Access, IT Security, and Privacy Measures

The Companies propose a customer energy portal to allow customers and customer-authorized third parties to access advanced meter data.<sup>57</sup> The Companies also allude to their need to develop policies "regarding third-party access to customer-specific advanced metering data."<sup>58</sup> The Companies state that they specifically included "requirements for the security of the customer energy usage information that will be collected through the advanced meters and MDMS[,]" and "requirements necessary to comply with the Companies' comprehensive cybersecurity measures" in their solicitations for the MDMS and telecommunications network systems.<sup>59</sup> As discussed further below, the commission supports these efforts and will require the Companies to file a comprehensive Data Access and Privacy Policy for all customers, as discussed in Section III.G., below.

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<sup>57</sup>See Application at 20.

<sup>58</sup>See Application at 20.

<sup>59</sup>See Application at 21; see also Exhibit F, at 3.

5.

Support for Commission and Company Priorities

The Companies state that implementation of Phase 1 will enable "distributed customer energy options that can provide more cost-effective alternatives to traditional wired investments."<sup>60</sup> The Companies further state that Phase 1 "aligns with existing needs to support recent [c]ommission decisions, such as the approved [DER] and [DR] Portfolio."<sup>61</sup> The Companies further state that Phase 1 will "enable recently approved [DER] programs [] and [DR] Portfolio" and "support and enable existing and future customer energy options."<sup>62</sup> These stated efforts and goals are consistent with the Strategy.

6.

Interoperability

The Companies state that they will verify, to the degree reasonably possible, the interoperability of the different vendors and technologies "through bench and/or field testing such that any unexpected issues or challenges are identified prior to the final

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<sup>60</sup>Application at 29.

<sup>61</sup>Application, Exhibit A at 2.

<sup>62</sup>Application, Exhibit B at 1.

award."<sup>63</sup> The Companies' stated intent is consistent with the guidance set forth in Order No. 35268. The Companies must remain proactive to ensure interoperability between present and future components of the Strategy.

7.

Future Compatibility

The Companies state that their evaluation of technologies for the Strategy "includes vendor demonstrations, testing and assessment to ensure the solutions . . . are compatible with each other and consistent with the GMS to ensure that the technology is scalable and compatible in the future to minimize risks of stranded investments."<sup>64</sup> The Companies further state that "Phase 1 will enable current and future customer-facing programs that facilitate customer choice through expanded adoption of customer energy options and integration of [CBRE]."<sup>65</sup> To achieve their stated intent, the Companies must consider the interoperability and future compatibility of Strategy components in other dockets, including DER, DR, CBRE, and integrated grid planning.

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<sup>63</sup>Application, Exhibit E at 3.

<sup>64</sup>Application at 30.

<sup>65</sup>Application, Exhibit B at 3.



8.

Expenditures beyond 2023

The Companies state that beyond 2023 "the Companies will need to continue to invest in and modernize the grid. At this time the scope and scale of this future effort are not known."<sup>66</sup> As such, the Companies must remain vigilant to ensure that decisions made today provide maximal future value.

C.

Project Costs and Benefits

1.

Phase 1 Proposed Costs

The Companies estimate Phase 1's total cost to be \$86,257,310,<sup>67</sup> which is based on estimates for each of the cost components associated with Phase 1.<sup>68</sup> As part of the Strategy, the Companies proposed evaluating certain components of

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<sup>66</sup>Application at 40.

<sup>67</sup>Application, Exhibit H at 1.

<sup>68</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

Phase 1 - advanced meters, headend, MDMS, and telecommunications components - with the lowest reasonable cost methodology.<sup>69</sup>

A critical element of the lowest reasonable cost method is competitive procurements.<sup>70</sup> Robust competition can provide some assurance that the components sought are purchased at the lowest reasonable cost, thus providing some protection to ratepayers. The Companies employed a competitive procurement process for Phase 1's components that "required the Companies to evaluate and consider alternative technology options" to meet policy objectives.<sup>71</sup> The commission notes that the Companies' procurement for Phase 1's components yielded prices that appear to be lower than past grid modernization proposals in Hawaii.<sup>72</sup>

As an additional measure of cost control, the commission will cap cost recovery for Phase 1's major components. Notwithstanding the difficulties the Companies identified,

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<sup>69</sup>See Application at 30 (citations omitted).

<sup>70</sup>See Strategy at 43.

<sup>71</sup>See Application at 30.

<sup>72</sup>See e.g. "Application of Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited; Exhibits A - I; Verification; and Certificate of Service," filed March 31, 2016, in Docket No. 2016-0087, at 12 (the Companies' Smart Grid Foundation Project Application); "Application; Exhibits 1 through 8; Verification; and Certificate of Service," filed October 28, 2010, in Docket No. 2010-0299 at 7-8 (Kauai Island Utility Cooperative's Smart Grid Project Application).

to ensure that Phase 1's benefits redound to ratepayers, the commission will require thorough tracking of project costs and benefits, and will review the Companies' methodology and quantification of such benefits.

2.

Cost Recovery Caps

The Consumer Advocate calls for caps on cost recovery for the MDMS and for smart meter installation.<sup>73</sup> In past dockets, the commission has imposed cost recovery caps to protect ratepayers.<sup>74</sup> Consistent with the Consumer Advocate's recommendation, and past commission practice, the commission will impose cost recovery caps on Phase 1, based on the entire record, including the Companies' component cost estimates.<sup>75</sup>

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<sup>73</sup>See Consumer Advocate SOP at 31-32 (the Consumer Advocate redacted its proposed cost caps as confidential, pursuant to Protective Order No. 35591).

<sup>74</sup>See In re Hawaiian Elec. Co., Inc., Docket No. 2016-0342, Order No. 34676, filed June 30, 2017, at 30; In re Hawaiian Elec. Co., Inc., Docket No. 2014-0170, Decision and Order No. 33861, filed August 11, 2016, at 43-44.

<sup>75</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

The commission will implement fixed and variable cost recovery caps, as follows.

Fixed Cost Recovery. The commission will implement fixed cost recovery caps for the MDMS project, the meter headend project, and the telecommunications headend project. For both the MDMS project and the meter headend project, the Companies shall recover no more than the lower of actual incurred costs or their proposed aggregated costs for all three Companies, including both capital expense and proposed deferred expense.<sup>76</sup> For the telecommunications headend project, the Companies shall recover no more than the lower of actual incurred costs or their proposed aggregated capital costs for all three Companies.<sup>77</sup>

Variable Cost Recovery. The commission will implement variable cost recovery caps for the advanced meters project and the telecommunications network project that result in a per-meter cap on cost recovery. For the advanced meters project, the Companies shall recover, for each meter installed and in operating service, no more than the lower of actual incurred costs or their proposed aggregated costs for all three Companies divided

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<sup>76</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

<sup>77</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

by 175,170 - the Companies' estimated number of advanced meters they will deploy in Phase 1.<sup>78</sup> For the telecommunications network project, the Companies shall recover, for each meter installed and in operating service, no more than the lower of actual incurred costs or their proposed aggregated expense for all three Companies divided by 175,170.<sup>79</sup>

As the commission has stated:

[t]he commission generally supports the Companies' approach to grid architecture and deploying grid and network investments proportionally to meet customer needs. But this proportional approach should not limit cost-effective deployment of distribution automation, advanced meters, or other grid investments. Tying such investments exclusively to customer DER adoption may unnecessarily limit their value. Therefore, the Companies should comprehensively evaluate grid needs to determine optimal timing, location, and sequencing of new investments.<sup>80</sup>

In implementing these cost recovery caps, the commission wishes to make clear that the Companies may deploy more advanced meters, faster and more broadly than they propose in the Application, and should consider doing so. This decision rests ultimately with the Companies and should be based on the Companies' experience and

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<sup>78</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

<sup>79</sup>See Application, Exhibit H at 1-3 (the Companies redacted their individual component cost estimates as confidential, pursuant to Protective Order No. 35591).

<sup>80</sup>Order No. 35268 at 29.

learning as Phase 1's implementation progresses. The per-meter cost recovery cap allows the overall approved costs of Phase 1 to be higher than the \$86.7 million proposed in the Application, if Companies exceed their proposed advanced meter deployment in Phase 1.

3.

Costs and Benefits Review

So that the commission may evaluate the merits and prudence of Phase 1, the commission directs the Companies to track all costs and benefits associated with Phase 1, as discussed below. This should also help the Companies efficiently and effectively design and implement later grid modernization phases. To promote transparency, the Companies must track where these costs and benefits come from, and identify how they are calculated.

As recommended by the Consumer Advocate, the commission directs the Companies to specifically track and quantify "any savings that the Companies might be able to achieve through aggressive project management . . . ." <sup>81</sup> As such, in addition to quantifying the project costs, the Companies shall develop a methodology for tracking project benefits. <sup>82</sup> All costs and savings

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<sup>81</sup>Consumer Advocate SOP at 31.

<sup>82</sup>See Consumer Advocate SOP at 18.

tracked will be reviewed in future rate case proceedings for each Company.

4.

Progress Reports

The Consumer Advocate recommends that the Companies file quarterly reports during Phase 1 containing: (1) the Companies' plans and scope for implementation in the up-coming months and/or year; (2) the status of the number of meters and units of telecommunications infrastructure that the Companies have installed and placed in service, in comparison to the Companies' plans and scope; (3) status of the installation of the MDMS in comparison to the Companies' plans and scope; (4) the actual capital and deferred costs incurred by the Companies; and (5) a copy of the status updates to the Executive Steering Committee that will provide governance, greater level of management, and consistency between the Companies for Phase 1.<sup>83</sup> The Companies state that this level of reporting would be "burdensome, would detract from the actual implementation of

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<sup>83</sup>See Consumer Advocate SOP at 40-41.

[Phase 1], and the Companies believe that semi-annual reports would provide sufficient details and transparency.<sup>84</sup>

To better enable the commission to review the Companies' implementation progress, and to balance the need to not overly burden the Companies with reporting requirements, the Companies shall submit semi-annual reports containing the following information: (1) plans and scope for implementation in up-coming months for each of the Companies' service territories; (2) status regarding the number of meters that the Companies have installed and placed in service, including the network used for the meters, and a direct comparison to the Companies' plan and scope of implementation for each of the Companies' service territories; (3) status of the MDMS installation in comparison to the Companies' plans and scope; (4) implementation status of metering and network communications headend systems in comparison to Companies' plans and scope; and (5) the actual capital and deferred costs incurred by the Companies for each service territory. The Companies shall file their first such report, in this docket, by June 30, 2019.

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<sup>84</sup>Companies RSOP at 56 n.114.



D.

Networks

The Companies' proposed use of mesh networks, as needed, where needed, is reasonable. The Consumer Advocate's recommendation to reject mesh networks, for now, does not consider the optimized mix of technologies the Companies propose to deploy, or the potential for longer term savings. Moreover, the Consumer Advocate's proposed solution of a 5G network is not currently practicable because 5G service is not widely available. Nevertheless, as the Companies implement grid modernization phases after Phase 1, they must study other network communication options including leveraging pole attached network buildout within the network deployment.<sup>85</sup>

E.

Accounting Treatment

The Companies propose specific accounting treatment for the various components of Phase 1 in Exhibit C of the Application. The Companies state that "[t]he proposed accounting for Phase 1's

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<sup>85</sup>The commission is currently reviewing the Companies' Application in Docket No. 2019-0032, in which the Companies request approval of a Template Master License Agreement for pole attachments. The commission expects that the Companies will leverage any ongoing opportunities working with third-party attachers to both build out public networking and provide connectivity for their own uses.

foundational components generally follows the accounting for capital expenditures and software projects approved by the [commission] in the past."<sup>86</sup> The Companies thus propose to capitalize the cost of equipment and hardware, and treat the related software and development costs as deferred expenses.<sup>87</sup>

Accordingly, the Companies propose to treat the advanced meters, telecommunications network, and telecommunications headend components, as well as identified portions of meter headend and the MDMS components as capital costs. Other identified portions of the meter headend and MDMS components are proposed as deferred costs.<sup>88</sup>

Subject to further examination of subsequent filings by the Companies<sup>89</sup> as Phase 1 is implemented, the commission generally finds the Companies' proposed accounting treatment for capitalized and deferred expenses to be reasonable.

The Companies propose to accrue AFUDC on expenditures for equipment that will be capitalized or deferred, at each

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<sup>86</sup>Application, Exhibit C at 1.

<sup>87</sup>Application, Exhibit C at 1-2.

<sup>88</sup>See Application, Exhibit C at 1-5.

<sup>89</sup>In accordance with the MPIR Guidelines and established practice, the Companies shall file requests, with supporting documentation, prior to the commencement of accrual of MPIR revenues.

Company's current AFUDC rate, until assets are placed in service.<sup>90</sup> The commission finds the AFUDC accounting proposed by the Companies to be reasonable for the identified capitalized components of Phase 1.

For the identified deferred expense components of Phase 1, however, the Companies may accrue interest on deferred account balances at the short-term debt rate approved in the Company's most recent rate case.<sup>91</sup>

The Companies propose to continue to depreciate and maintain the existing and replaced meters taken out of service as a result of Phase 1 as utility assets "until the meters are retired[,] with depreciation continuing "using the current [c]ommission-approved depreciation rate."<sup>92</sup> It thus appears that the Companies intend to maintain the existing meters taken out of service in Phase 1 in effective rate base until fully depreciated. The Consumer Advocate notes that "[m]any if not most of the meters removed from service prematurely will have an undepreciated value" and that customers "will continue paying for them until such meters are fully depreciated."<sup>93</sup> The Consumer Advocate argues that the

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<sup>90</sup>Application at 5; Exhibit C at 2.

<sup>91</sup>This is consistent with the treatment of software costs allowed for the ERP/EAM project in Docket No. 2014-0170.

<sup>92</sup>Application, Exhibit C at 3.

<sup>93</sup>Consumer Advocate SOP at 26.

Companies' proposed treatment "appears to be a violation of the well-established 'used and useful' principle" and that "ignoring these costs might lead to sub-optimal implementation prioritization plan choices."<sup>94</sup>

The commission finds the Companies' proposed treatment of existing replaced meters to be reasonable in the specific instance of Phase 1 implementation. Each customer account must have sufficient metering at all times. The costs of replacing existing meters in the course of Phase 1 implementation are currently unavoidable ones for which no more economical alternative has been put forth and, subject to further review in the context of each Company's general rate cases, are therefore eligible for continued cost recovery during this interim period, as the Companies proposed. For purposes of later evaluations of the merits of Phase 1, prioritization of implementation of Phase 1, studies or determination of the costs versus benefits of Phase 1,<sup>95</sup> and the design and evaluation of later phases of grid modernization, the costs of prematurely taking existing meters out of service (i.e., the undepreciated costs borne subsequently by customers) shall be considered and included.

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<sup>94</sup>Consumer Advocate SOP at 26.

<sup>95</sup>See Section III.C.3., above.

The Companies propose to depreciate the costs of the advanced meters presuming a life of thirty years. The Consumer Advocate notes that it "is unable to identify any utility which depreciates smart meters over anything more than a 15-year useful life[,] " citing several instances in prior commission dockets in which the Consumer Advocate and the Companies proposed useful lives of similar equipment of fifteen years and shorter.<sup>96</sup> The Consumer Advocate notes that using a shorter useful life for the depreciation of the advanced meters would increase the rate impacts of Phase 1 compared to the estimates provided by the Companies, but nevertheless appears to favor depreciation using a shorter 15-year useful life for the advanced meter equipment.<sup>97</sup>

The commission accepts the Companies' proposed useful life for the advanced meters for purposes of determining depreciation rates. The commission notes, however, that the commission may not allow continued return and depreciation on the advanced meters in future years if meters are taken out of service prematurely due to obsolescence or failure. In this regard, the allowance of continued return and depreciation for existing meters taken out of service for installation of advanced meters

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<sup>96</sup>Consumer Advocate SOP at 24-25 (citations omitted).

<sup>97</sup>Consumer Advocate SOP at 25.

provided elsewhere in this Decision and Order should not be expected to serve as precedent for treatment of obsolescence or premature retirement of the advanced meters installed in Phase 1.

F.

#### Interim Recovery

The HECO Companies request interim recovery (i.e., recovery of costs prior to incorporation in base rates in a future rate case) of certain Phase 1 costs through the MPIR adjustment mechanism,<sup>98</sup> specifically, the capital and deferred costs of Phase 1 totaling \$86.1 million. Exhibit D of the Application addresses the Companies' request for interim cost recovery generally and provides the Companies' information and positions. To the extent the commission does not allow interim recovery through the MPIR Mechanism, the Companies seek recovery through the REIP Surcharge, and if not allowed through either,

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<sup>98</sup>As stated in the MPIR Guidelines, the MPIR adjustment mechanism is intended "[t]o provide opportunity for reasonable recovery of specifically allowed revenues for the net costs of approved Eligible Projects placed in service between general rate cases under circumstances wherein cost recovery is limited by a revenue cap and is not provided for by other effective recovery mechanisms." MPIR Guidelines at 3.

then through recovery of the costs deferred and amortized in base rates in a future rate case.<sup>99</sup>

The Consumer Advocate "believes it could be reasonable for the [c]ommission to allow the costs associated with Phase 1 to be recovered through MPIR and/or base rates," and supports the Companies' proposed deferral of software costs with accrual of AFUDC, but expresses concerns regarding cost control, the timing of the costs to customers relative to the delivered benefits, and the need for updated rate designs to more fairly allocate costs to "cost-causer[s]."<sup>100</sup>

After reviewing the Application, and considering the Consumer Advocate's position, the commission finds that MPIR recovery for the costs of Phase 1 should be allowed, with certain modifications. Except as noted below, and subject to further review of subsequent filings by the Companies as Phase 1 is implemented, the Companies' proposed MPIR recovery methods, as outlined in Application Exhibits D and J are generally reasonable.<sup>101</sup> The commission also finds reasonable each Company's proposed rate of return for interim recovery on capitalized plant,

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<sup>99</sup>See Application, Exhibit D at 1.

<sup>100</sup>See Consumer Advocate SOP at 39-42.

<sup>101</sup>The commission is not approving any of the specific amounts, scheduling, or quantified supporting assumptions for the MPIR adjustments or deferrals identified in Exhibits D or J.

at the approved rate of return on rate base for each Company, as may be subsequently modified in later general rate cases.

With the exception of certain matters identified below, the Companies have complied with the filing requirements in the MPIR Guidelines. The Application provides a business case generally pursuant to the requirements of the Guidelines,<sup>102</sup> provides information and arguments supporting its burden of proof to demonstrate that the identified costs meet the criteria identified in the Guidelines,<sup>103</sup> provides a sufficiently detailed schedule and budget for the project elements,<sup>104</sup> and provides details regarding the magnitude and methods of calculation, accounting and recovery of MPIR recovery amounts.<sup>105</sup>

As discussed in further detail, below, the commission finds that Phase 1 is an eligible project and meets the specific qualifying criteria in the MPIR Guidelines, and notes that the Guidelines explicitly list "Grid Modernization Projects" in the list of examples of types of eligible projects.<sup>106</sup> The commission notes several matters below that will require further examination

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<sup>102</sup>Application, Exhibit B.

<sup>103</sup>Application, Exhibit D.

<sup>104</sup>Application, Exhibits B and D.

<sup>105</sup>Application, Exhibits C and J.

<sup>106</sup>MPIR Guidelines at 4.



or exception to specific aspects of the Companies' proposed interim cost recovery.

1.

Business Case

The MPIR Guidelines require a "detailed business case study" that reasonably documents and quantifies the "cost/benefit characteristics of the investments and activities, indicating each criterion used to evaluate and justify the project . . . ." <sup>107</sup> Although the Application's business case does not include a detailed cost/benefit analysis, <sup>108</sup> a combination of requirements for competitive procurement, cost recovery caps, and tracking of savings and benefits, have contributed to the commission's determination that MPIR recovery is approved, as described herein.

2.

Short Term Utility Benefits

One issue that is not clearly resolved in the record is whether Phase 1 will provide the Companies with material reductions in short-term expenses that should be passed through to customers. The Consumer Advocate expresses a concern that the proposed interim

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<sup>107</sup>MPIR Guidelines at 6-7.

<sup>108</sup>See Application, Exhibit B.

cost recovery "ensures the Companies will recover smart meter costs between rate cases, [but] no similar arrangement exists to deliver any operating benefits realized from the smart meter roll-out to customers between rate cases."<sup>109</sup> The Consumer Advocate recommends that "the Companies establish a pass-through methodology and/or process, similar to Docket No. 2014-0170, that will provide a means by which the savings associated with [Phase 1]" are timely passed on to customers.<sup>110</sup>

The MPIR Guidelines provide for recognition of short-term reductions in utility expenses that result from implementing Major Projects by providing that only costs net of benefits are recoverable through the MPIR mechanism. In the Application, the Companies address this provision by stating that Phase 1 will be implemented "in an as-needed, where-needed manner that will maximize value to customers while minimizing rate impacts[,] and notes that "[s]ome cost savings may be forgone in the near term compared to an immediate system-wide implementation," concluding that "Phase 1 costs will be offset by benefits for customers who will be able to take advantage of programs that are enabled through the implementation of grid

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<sup>109</sup>Consumer Advocate SOP at 17.

<sup>110</sup>Consumer Advocate SOP at 41.

modernization technologies."<sup>111</sup> But none of these arguments directly address the question of whether Phase 1 will result in cost savings to the Companies.

Short-term utility benefits are not quantified in the Application, nor is it clear whether the Companies have sufficiently investigated the full extent of utility benefits. Beyond the Companies' arguments that quantification is difficult,<sup>112</sup> there is no conclusive discussion of the scope or general magnitude of potential cost reductions. Whether these savings are extensive or material is not clear, and could not be clear without evidence that such potential sources of savings have been diligently investigated.

As noted above in Section. III.C.3., the commission will require the Companies to develop a methodology for calculating and tracking Phase 1's quantifiable benefits, including identification and quantification of reductions in utility expenses. This tracking will be used to evaluate the merits and prudence of Phase 1, inform the design and budget for later phases of grid modernization, and whether and by what amount, interim recovery through the MPIR mechanism should be offset by quantifiable benefits realized by the Companies in the interim period.

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<sup>111</sup>Application, Exhibit D at 8.

<sup>112</sup>See Application at 30.

3.

#### Deferred Costs

The Companies request recovery of identified deferred costs through the MPIR mechanism.<sup>113</sup> The commission approves the proposed deferral of the software and other costs for the meter headend and MDMS elements of Phase 1, and the requested recovery of the deferred costs through the MPIR mechanism for HELCO and MECO.<sup>114</sup>

4.

#### MPIR Accrual Timing

The MPIR Guidelines require applications to propose specific criteria to determine the used and useful status of a project that will trigger commencement of accrual of MPIR recovery.<sup>115</sup> The Application identifies such criteria for the various elements of Phase 1. These criteria include, applied variously to each element: "upon completion of

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<sup>113</sup>See Application at 39-40.

<sup>114</sup>The commission notes that the meter headend and MDMS projects for HECO are scheduled to go into service in the 2020 test year in HECO next general rate case and that the deferred costs for these projects are not expected to be recovered through the MPIR mechanism. See Application, Exhibit J.

<sup>115</sup>See MPIR Guidelines at 7 (Section C.3.g).

installation" and "after commissioning."<sup>116</sup> The Companies do not identify a criterion that would ensure that each element is functional, serving an intended and useful purpose, performing to specification, or has passed any tests required to ensure adequate performance of vendor obligations. As such, the Companies shall propose supplemental criteria for establishing used and useful status for use in determining the commencement of MPIR recovery accrual for each of the Phase 1 elements, within 90 days of the date of this order.

A related question is the expected timing and frequency of requests for adjustments to target revenues resulting from the phased implementation of several project elements for each Company ("MPIR Adjustments"), some of which have components entering service each month. Exhibit J of the Application identifies an initial adjustment filing for each Company in 2019 and a following adjustment for HECO and HELCO in February of 2020. It is not clear, however, whether the Companies plan to request adjustments in addition to an annual February adjustment in 2020 or beyond. The Companies shall clarify, for further review by the commission, the expected timing and frequency of MPIR Adjustments for Phase 1, and provide a schedule of known, expected, and example possible MPIR Adjustments, within 90 days of the date of this Order.

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<sup>116</sup>Application, Exhibit D at 9-10.

The commission will address the allowed criteria, timing, and frequency of MPIR Adjustments in a later order.

5.

MPIR Conditions

The Application proposes to enable grid insight and energy management options provided by the advanced meters. The commission supports this proposal and further asserts that the full value of advanced meters cannot be realized unless advanced rates are implemented. Advanced rates, in turn, cannot be effective unless customers and the Companies have the data necessary to respond to them.

Studies have shown that customers who have access to their usage data may achieve significant bill reductions and energy savings, between six and eighteen percent.<sup>117</sup> The Companies

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<sup>117</sup>See, e.g., See Improving Access to Energy Usage Data, American Council for an Energy Efficient Economy, available at <https://aceee.org/sector/local-policy/toolkit/utility-data-access> (showing that an energy efficiency program, enabled by advanced metering infrastructure saved participating residents ten percent on their energy bills in comparison to a baseline year); Michael Murray and Jim Hawley, Got Data? The Value of Energy Data Access to Consumers, Gridworks, Mission Data (January 2016) ("Got Data ?") available at <https://gridworks.org/wp-content/uploads/2017/01/Gridworks>DataAccessReport.pdf> (compiling twelve studies that showed energy savings between six and eighteen percent, when customers have access to meter data).

similarly express that "[a]ccess to data is a key part of enabling customer choice and control."<sup>118</sup>

Advanced rates, in turn, could allow and encourage customers to harness their data to generate savings, provide grid benefits when and where needed, and reduce their greenhouse gas emissions. The Companies state that "cost recovery of grid modernization investments is closely intertwined with both the DER and DR proceedings via retail rate design."<sup>119</sup>

Therefore, the commission will require the Companies to file a Data Access and Privacy Policy and an Advanced Rate Design Strategy within six months of the date of this Order, as a condition of MPIR recovery.<sup>120</sup> The Data Access and Privacy Policy should include the Companies' planned data access and privacy efforts and the expected timeline for implementation. The Advanced Rate Design Strategy should provide the basis for future programs that drive customer savings and maximize the investments made in Phase 1.

Based on the anticipated value of usage data and advanced rates, the commission finds it necessary to withhold a percentage

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<sup>118</sup>See Strategy at 66.

<sup>119</sup>See Strategy at 47 (citation omitted).

<sup>120</sup>This is discussed in further detail in Sections III.G. and H., below.

of MPIR recovery to ensure that the Companies timely and satisfactorily file the Data Access and Privacy Policy and the Advanced Rate Design Strategy, and meet all the conditions related thereto. The commission will withhold seven and one half percent (7.5%) of any requested MPIR recovery until the Advanced Rate Design Strategy has been filed and accepted by the commission through Order, and an additional seven and one half percent (7.5%) of any requested MPIR recovery until the Data Access and Privacy Policy has been filed and accepted by the commission through Order.<sup>121</sup> The commission expects that a more informed approach to both advanced rates and data will provide substantial near-term benefits for ratepayers, and encourages the Companies to continue developing prospective programs that take advantage of their grid modernization efforts. The requirements for the Data Access and Privacy Policy, and the Advanced Rate Design Strategy are set forth below.

#### G.

##### Data Access and Privacy Policy

Accurate and accessible data is increasingly important to the Companies and their customers because limited data

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<sup>121</sup>Discussed in further detail below in Sections III.G. and H., below.



visibility could lead to inefficient customer and grid investments. The Companies state that "[a]ccess to data is a key part of enabling customer choice and control."<sup>122</sup> Improved data access will enable customers to make more informed choices that support energy efficiency, demand response programs, and services that will ultimately result in a more resilient and reliable grid.

Phase 1 includes components that will enable both customers and customer-authorized third parties to easily and reliably access customer data, including through a customer energy portal ("Portal") that includes Green Button functionality for customers and customer-authorized third parties to access advanced meter data.<sup>123</sup> The Portal will incorporate "a standardized Green Button interface and functionality" to allow "customers and customer-authorized third parties to access the meter data collected from the advanced meters and stored in the MDMS."<sup>124</sup> The Companies also intend to assess the existing online customer

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<sup>122</sup>Strategy at 66.

<sup>123</sup>See Application at 20. According to the Companies, Green Button functionality has two components, Download My Data - which the Companies plan to implement as part of the energy portal, and Connect My Data - which is a newer component that the Companies intend to implement "if practical." See Response to PUC-IR-103.

<sup>124</sup>Application, Exhibit A, at 5-6 (citations omitted).

energy portals already integrated on MDMS to further understand customer preferences and continue to evolve the portal.<sup>125</sup>

The commission has encouraged the Companies to explore increasing data access and visibility.<sup>126</sup> The commission recommended that the Companies: (1) focus on delivering immediate value and benefits to customers with installation of smart grid infrastructure, including offering web portals for customers to access and view energy consumption data,<sup>127</sup> (2) utilize smart meter, communication network, and data management technologies to empower customers to better manage their energy usage data and access other energy management options,<sup>128</sup> and (3) develop data privacy policies prior to the widespread rollout of smart grid infrastructure.<sup>129</sup> The commission reiterates that the Companies must enable customers and customer-authorized third parties to easily and reliably access up-to-date customer usage and billing data, while simultaneously providing data privacy and security.

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<sup>125</sup>See Application, Exhibit A, at 6.

<sup>126</sup>See In re Public Util. Comm'n, Docket No. 2014-0192, Order No. 34206, filed December 9, 2016, at 9; In re Hawaiian Elec. Co., Inc., Docket No. 2016-0087, Order No. 34281 ("Order No. 34281"), filed January 4, 2017, at 18-21.

<sup>127</sup>See Order 34281 at 18.

<sup>128</sup>See Order 34281 at 21.

<sup>129</sup>See Order 34281 at 19-20.

To build on the Companies' efforts to date, and reinforce prior commission guidance, the commission directs the Companies to develop a Data Access and Privacy Policy, describing, at a minimum, the Companies' planned data access efforts and the expected timeline for implementation. As described above, the filing and acceptance of the Data Access and Privacy Policy is a condition of recovering seven and one half percent (7.5%) of any MPIR recovery request.<sup>130</sup>

The Data Access and Privacy Policy Plan must also explore the expenditures and time required to extend Green Button Connect and Download My Data functionality to all customers, including those without advanced meters. The Data Access and Privacy Policy should also provide additional insight on data specifications, including but not limited to: (1) data sets to be offered to customers (e.g., historical and current interval usage, demand, voltage, etc.); (2) the Companies' data hosting policies; and (3) third party data access and data availability, including a discussion on the Companies' plans regarding a third party authorization process.<sup>131</sup>

The commission also expects the Data Access and Privacy Policy to include a framework describing how the Companies intend

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<sup>130</sup>See Section III.F.5., above.

<sup>131</sup>See Got Data? at 23-24.

to protect customer data. In developing this portion of the policy, the Companies should review customer data privacy policies instituted in different jurisdictions, including California<sup>132</sup> and Illinois,<sup>133</sup> to identify best practices and simplify implementation.<sup>134</sup>

The commission expects the Companies will continue to incorporate and adopt elements of the U.S. Department of Energy's DataGuard program,<sup>135</sup> as mentioned in the Companies' Grid Modernization Strategy,<sup>136</sup> and describe any modifications and additions that they may make to it in the Data Access and Privacy Policy.

To support the development of the Data Access and Privacy Policy, the commission encourages the Companies to utilize a collaborative stakeholder process to assist in its development and

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<sup>132</sup>See California Public Utilities Commission, Rulemaking 08-12-009 - Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's Own Motion to Actively Guide Policy in California's Development of a Smart Grid System, Decision 11-07-056, filed July 29, 2011 and Decision 14-05-016, filed May 5, 2014.

<sup>133</sup>See Illinois Commerce Commission, Proceeding to Adopt the Illinois Open Data Access Framework, Order 14-0507, filed July 26, 2017.

<sup>134</sup>See Got Data? at 23-24.

<sup>135</sup>See Department of Energy's DataGuard Energy Data Privacy Program available at <https://www.dataguardprivacyprogram.org/>.

<sup>136</sup>See Strategy at 67.

to identify and ensure alignment with best practices. The Companies may also continue to engage with outside experts for technical support, as necessary, including from the Advanced Grid Research Voices of Experience Initiative provided by the Department of Energy.<sup>137</sup>

As discussed in Section III.F.5., above, the Data Access and Privacy Policy shall be filed in this docket within six months of the date of this Order, and will be subject to further review by the commission.

H.

#### Advanced Rate Design Strategy

The Companies' grid modernization efforts can serve as a pathway to enable additional value from DER, and create opportunities for customers to more fully participate in the energy system. These opportunities cannot be fully realized without dynamic rate options and programs that help align customer behavior with grid needs. As the Companies continue to invest in technologies such as advanced meters, the need to develop sophisticated rate designs that leverage the capabilities of

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<sup>137</sup>In October 2018, the U.S. Department of Energy's Advanced Grid Research Voices of Experience Initiative led a workshop on first hand utility experience utilizing Advanced Metering Infrastructure or smart meters in their service territories.

advanced meters becomes increasingly important. As noted in recent commission proceedings, rate design is a topic that is intertwined with growing market-based service opportunities and may further be enabled by newer and more advanced metering technology.<sup>138</sup> The Companies state the "new generation of advanced meters" will "enable the collection of interval usage data and outage notifications," and will "provide better sensing capabilities, and needed functionality with remote connect/disconnect capabilities for both residential and commercial customers."<sup>139</sup> Additionally, the Companies state that "Phase 1's platform will further enable variable pricing, such as [Time of Use], DER compensation programs, such as Smart Export, and DR Portfolio execution."<sup>140</sup>

To aid the Companies in maximizing the benefits of advanced meters, the commission directs the Companies to develop a succinct Advanced Rate Design Strategy that describes how the Companies will leverage the technological capabilities of advanced meters to support the Companies' planned programs and the commission's stated priorities.

The Advanced Rate Design Strategy should briefly describe the Companies' plans to offer advanced rate designs and

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<sup>138</sup>See, e.g., DER (Docket No. 2014-0192); DR (Docket No. 2015-0412); and EoT (Docket No. 2018-0135).

<sup>139</sup>Application at 22-23.

<sup>140</sup>Application, Exhibit B at 4 (citation omitted).

programs, and include advanced rate design proposals for further development and consideration.

The commission expects the Advanced Rate Design Strategy to include at a minimum: (1) a timeline for the Companies to offer updated dynamic rates for all residential and commercial customers (including, the introduction of time-varying rates, critical peak pricing, and real time pricing rate structures); (2) potential rate reform considerations to support low-income customer participation in these offerings; (3) enrollment mechanisms for convenient customer participation in the advanced rate offerings; (4) implementation plans for offering advanced rates, including education and outreach to customers; and (5) evaluation plans for monitoring, verifying, and improving the effectiveness of advanced rate designs. The Advanced Rate Design Strategy should also describe how the advanced rate offerings will complement the Data Access and Privacy Policy discussed above.

The commission is aware that the Companies have begun to explore advanced rate designs, and therefore directs the Companies to summarize these efforts in the Advanced Rate Design Strategy,

along with best practices developed in other jurisdictions<sup>141</sup> and related industry literature.<sup>142</sup>

Because the Advanced Rate Design Strategy will touch on many of the efforts already underway in the DER docket, given the active stakeholder group in the DER docket, and the Companies' plan to deploy advanced meters to DER customers first, the commission finds that Docket No. 2014-0192 is the appropriate place to continue developing the Advanced Rate Design Strategy. To facilitate the Advanced Rate Design Strategy's transition between this docket and Docket No. 2014-0192, the Companies shall file their Strategy in both dockets. Review and further development of the Advanced Rate Design Strategy will proceed in Docket No. 2014-0192.

Parties to Docket No. 2014-0192 will have the opportunity to comment on the Advanced Rate Design Strategy, and the Companies will have the opportunity to refine

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<sup>141</sup>See e.g., New York Department of Public Service, Case 14-M-0101 - Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Staff White Paper on Ratemaking and Utility Business Models, filed July 28, 2015.

<sup>142</sup>See e.g., Jim Lazar and Wilson Gonzalez, Smart Rate Design for a Smart Future, Regulatory Assistance Project (July 2015), available at <http://www.raponline.org/wp-content/uploads/2016/05/rap-lazar-gonzalez-smart-rate-design-july2015.pdf>, and Devi Glick, Matt Lehrman, and Owen Smith, Rate Design for the Distribution Edge, Rocky Mountain Institute (August 2014), available at <https://rmi.org/wp-content/uploads/2017/04/201425eLabRateDesignfortheDistributionEdge-Full-highres-1.pdf>.



it accordingly. The Companies shall file the Advanced Rate Design Strategy within six months from the date of this Order, and it will be subject to further review by the commission in Docket No. 2014-0192. Acceptance of the Advanced Rate Design Strategy by the commission is a condition for recovering seven and one half percent (7.5%) of any MPIR recovery request, as discussed, above, in Section III.F.5.

#### IV.

##### SUMMARY OF FINDINGS AND CONCLUSIONS

Based on the foregoing, and the entire record in this docket, the commission finds and concludes as follows.

1. As the commission has stated:

a modernized grid is the "backbone" necessary to advance the State's RPS goals, support integration of additional levels of renewables, encourage competition, empower consumers to make their own choices concerning the level and types of electric service they desire, and leverage customer-sited resources to assist in grid operation.<sup>143</sup>

2. In approving the Strategy, the commission stated "[i]t is time to move beyond high-level strategies to build that backbone."<sup>144</sup>

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<sup>143</sup>Order No. 34281 at 2.

<sup>144</sup>Order No. 35268 at 35 (emphasis omitted).

3. Phase 1 represents the first step in implementing the Strategy, and complies with the directives the commission set forth when conditionally approving the Strategy.<sup>145</sup>

4. Subject to the cost recovery caps set forth herein, the Phase 1 costs identified in the Application are reasonable for the purposes of allowing the Companies' expenditure of funds, and should enable customer benefits that exceed those costs.

5. The cost recovery caps allow cost recovery for faster and broader deployment of advanced meters than the Companies propose in the Application, and the Companies should consider doing so.

6. The savings and benefits tracking described herein is necessary to enable the Companies' customers to fully realize the benefits of Phase 1, allow for the evaluation of the merits and prudence of Phase 1's implementation, and inform the design and budgeting for later grid modernization phases.

7. The semi-annual progress reports described herein will enable the commission to review Phase 1's implementation progress.

8. Except as otherwise noted herein, the Companies' proposed accounting treatment for Phase 1 is reasonable, including the Companies' proposed AFUDC accounting for the

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<sup>145</sup>See Order No. 35268 at 35-39.

identified capitalized components of Phase 1, and the Companies' proposed treatment of existing replaced meters. However, for the identified deferred expense components of Phase 1, the Companies may accrue interest on deferred account balances at the short-term debt rate approved in each Company's most recent rate case.

9. The commission will allow interim recovery for all reasonable Phase 1 costs, as provided herein.

10. The Companies' proposed method to recover Phase 1 costs, including deferred costs, via the MPIR is reasonable, subject to the conditions set forth herein.

## V.

### ORDERS

#### THE COMMISSION ORDERS:

1. The Application is approved subject to the conditions set forth herein.

2. The Companies may not recover costs for Phase 1 in excess of the cost recovery caps set forth herein.

3. The Companies shall track all project cost savings and operational benefits associated with Phase 1, including where the costs and benefits come from, and shall identify a methodology for their calculation. The Companies shall also track all benefits and any other costs that result from Phase 1.

4. Starting on June 30, 2019, the Companies shall file in this docket, semi-annual progress reports that contain: (1) plans and scope for implementation in up-coming months for each of the Companies' service territories; (2) status regarding the number of meters that the Companies have installed and placed in service, including the network used for the meters, and a direct comparison to the Companies' plan and scope of implementation for each service territory; (3) status of the installation of the MDMS in comparison to the Companies' plans and scope; (4) status of implementation of metering and network communications headend systems in comparison to Companies' plans and scope; and (5) capital and deferred costs incurred by the Companies for each service territory.

5. Subject to further examination of subsequent filings by the Companies as Phase 1 is implemented, the commission approves the Companies' proposed accounting treatment for capitalized and deferred expenses as reasonable. Specifically:

A. The commission finds the AFUDC accounting proposed by the Companies to be reasonable for the identified capitalized components of Phase 1.

B. For the identified deferred expense components of Phase 1, the Companies may accrue interest on deferred account balances at the short-term debt rate approved in the Company's most recent rate case.

C. The commission finds the Companies' proposed treatment of existing replaced meters to be reasonable in the specific instance of Phase 1 implementation. However, for purposes of later evaluations of the merits of Phase 1, prioritization of implementation of Phase 1, studies or determination of the costs versus benefits of Phase 1, and the design and evaluation of later phases of grid modernization, the costs of prematurely taking existing meters out of service (i.e., the undepreciated costs borne subsequently by customers) shall be considered and included.

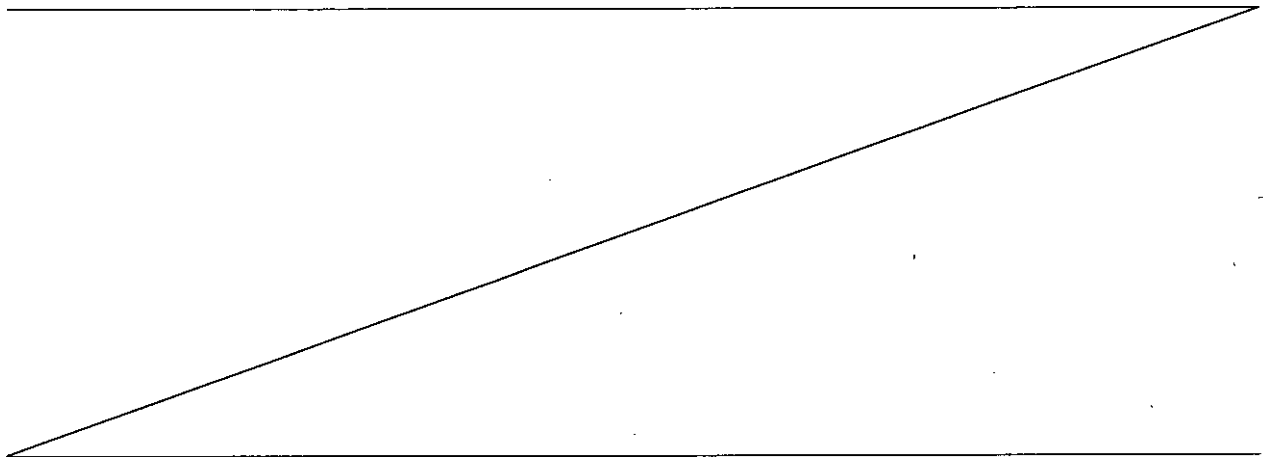
D. The commission accepts the Companies' proposed thirty-year useful life for advanced meters for purposes of determining depreciation rates. The commission does not, however, guarantee continued return and depreciation on the advanced meters in future years if meters are taken out of service prematurely due to obsolescence or failure.

6. The commission approves the Companies' proposed MPIR recovery methods, except as otherwise noted herein, and subject to further review of subsequent filings by the Companies as Phase 1 is implemented. The commission also approves each Company's proposed rate of return for interim recovery on capitalized plant, at the approved rate of return on rate base for each Company, as may be subsequently modified in later general rate cases.

A. Within 90 days of the date of this Order, the Companies shall propose supplemental criteria for establishing used and useful status for use in determining the commencement of MPIR recovery accrual for each of the Phase 1 elements, and propose their expected timing and frequency of MPIR Adjustments for Phase 1, and provide a schedule of known, expected, and example possible MPIR Adjustments.

7. The commission will withhold seven and one half percent (7.5%) of any otherwise allowed MPIR recovery until the Data Access and Privacy Policy is filed and accepted; and an additional seven and one half percent (7.5%) of any MPIR recovery request until the Advanced Rate Design Strategy is filed and accepted.

8. The Companies shall file the Data Access and Privacy Policy in this docket no later than six months from the date of this Order, for commission review and acceptance, as appropriate.



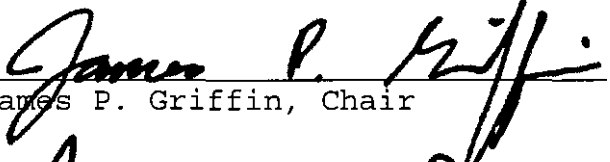
9. The Companies shall file the Advanced Rate Design Strategy in this docket, and in Docket No. 2014-0192, no later than six months from the date of this Order. Review, commission acceptance, as appropriate, and further development of the Advanced Rate Design Strategy will proceed in Docket No. 2014-0192.

DONE at Honolulu, Hawaii

MAR 25 2019

PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII


By

  
James P. Griffin, Chair

By

  
Jennifer M. Potter, Commissioner

APPROVED AS TO FORM:

  
Mike S. Wallerstein  
Commission Counsel

2018-0141.ljk

CERTIFICATE OF SERVICE

The foregoing order was served on the date of filing by mail,  
postage prepaid, and properly addressed to the following parties:

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